

Interactive comment on “Geomagnetic pulsations in the Pc5/Pi3 frequency range and fluctuations of foF2 frequency” by Nadezda Yagova et al.

Anonymous Referee #2

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The paper presents several puzzling results: - The occurrence of specific Pc5 oscillations with coherent ionospheric and geomagnetic pulsations, where the relative ionospheric response $\Delta N/N$ is about order of magnitude larger than the relative amplitude of a driver $\Delta B/B$. - These specific oscillations are supposedly associated with global magnetospheric oscillations driven by the solar wind quasi-periodic fluctuations. However, in presented events, the satellites were in a different sector of the magnetosphere as compared with ground station.

The paper could not find a consistent description of these observations, but it is stimulating that these possibilities have been raised. In particular, anti-phase plasma and magnetic pressure variations recorded by satellite, contradicts the assumption on global fast compressional mode responsible. The small-scale mode (high-m) hardly

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can be responsible for global pulsations. To confirm the global character of oscillations, additional satellite (e.g., GOES) and ground stations should be used in further studies.

Minor comments 1) In the equation (1) dimensionless expression for altitude h is desirable.

2) In Subsection 3.2.2, a description of THEMIS positions, for which the results are shown in Figure 20, is necessary. At least, L values and separation in MLT from SOD should be provided.

3) Line 140 - the end of the subsection. The decrease of probability at high geomagnetic activity may be the artifact of the method because it contradicts to the analysis cited in the m/s . This result should be discussed in a more explicit way to avoid misunderstanding.

4) Line 98: MHZ -> MHz

5) abbreviations like FP in Table 1, and notations for variables like $\tilde{f}A\check{g}$ should be explained, when they occur in the text for the first time.

6) in the introduction, authors reviewed the papers where modulation of the ionosphere by Alfvén waves were treated. For completeness, it would be helpful to mention the possibility of the ionosphere modulation by fast compressional mode [Vorontsova, E., et al., Modulation of total electron content by global Pc5 waves at low latitudes, *Advances in Space Research*, 57, N1, 309-319, 2016, doi: 10.1016/j.asr.2015.10.041].

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